Department of
Environment &
Conservation

Tennessee Stream Mitigation Guidelines
TN Debit Tool
Public Comment Hearing - Dec. 11, 2018

Division of Water Resources

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Stream or Wetland Alterations

- Require authorization through *Aquatic Resource Alteration Permits*
- Must comply with water quality standards and protect for classified uses (e.g. *401 Water Quality Certification*)
- Cannot result in a condition of pollution
- Cannot result in a net loss of water resource value (= the need for compensatory mitigation requirements)

Aquatic Resource Alteration Permits

Common Types of Activities that may require mitigation :

- Stream encapsulations by pipe, culvert, or bridge
- Stream relocations
- Wetland alterations, including filling or draining
- Dredge or fill in streams and reservoirs
- Stream channel modifications, including channelization or widening
- Streambank modifications, including hard armoring
- Impoundments

When is Mitigation required ?

- When there is an "**Appreciable permanent loss of resource values"**
- Effects of impacts must be evaluated both individually and cumulatively
- Mitigation proposed must be "**sufficient to ensure no overall net loss of resource values from existing conditions"**

Stream Mitigation Guidelines are needed to:

- Explain what activities constitute a loss of resource value and when is mitigation required.
- Provide a framework of how the amount of mitigation required to ensure no net loss will be evaluated.
- Explain what type of activities are eligible for offsetting lost resource value.
- Provide mitigation site selection evaluation guidance.
- Describe how we evaluate these activities, including performance standards and monitoring.

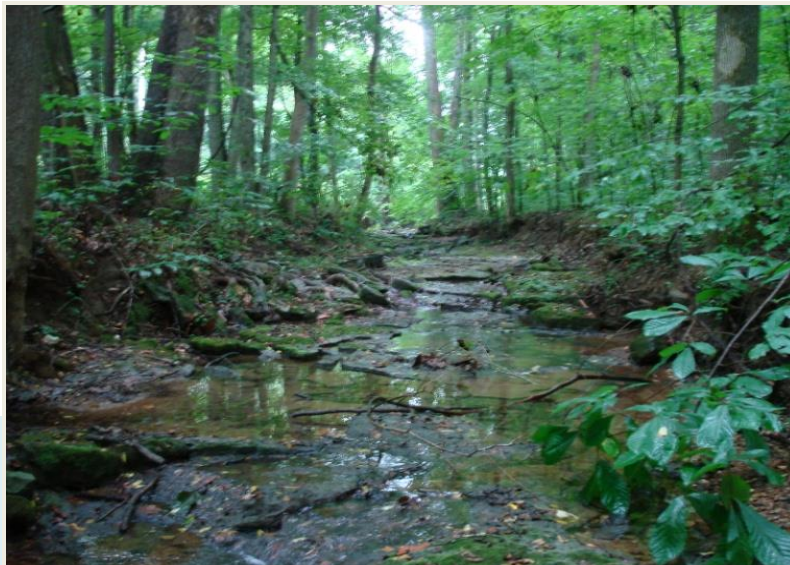
Inform us on how to calculate debits and credits.

Why are revised *Guidelines* being proposed?

- The current *TN Stream Mitigation Guidelines (SMG)* have been in place since 2004.
- The Division has known and been tracking needed changes to the *ARAP Rules* and *Stream Mitigation Guidelines* for some time – out of date in current processes, current science, and in meeting 2008 *Federal Mitigation Rule*.
- In 2012 the Division released a draft revision of the SMG. Comments were extensive, primarily that the Division needed to do a better job in developing a scientifically defensible, data-driven functional assessment methodology.
- Since 2013 in partnership with the USACE, IRT, and other stakeholders, we have been working on the *Tennessee Stream Quantification Tool* (TN SQT) as a technical resource for use in the anticipated future revision.

Why are revised *Guidelines* being proposed?

- In 2014 the Division held an ARAP Programmatic Goal Stakeholder Summit – development of a functional assessment and better performance standards for stream mitigation were highlighted as primary concerns by the stakeholders.
- As part of the latest SMG revision process the Division held another public outreach event, and took public comments in June/July of 2018.
- This proposed updated SMG document reflects the stakeholder inputs, current processes, updated federal rule requirements, more recent updates to the ARAP Rules and Water Quality Standards, and publication of the TN SQT and other supporting documents.



Significant changes – Functional Feet

- Movement from a **qualitative, narrative, more generalized evaluation** of lift and loss (e.g. ratio-based categories of credits and debits), to a more **quantitative, data-driven, site-specific assessment** of lift and loss (e.g. functional-foot calculation of credits and debits).

- Ratio-based crediting was based on the type of work and did not account for the resource's existing condition, or the quantity of functional lift actually produced.

- Functional-Foot assessment bases credits on the actual lift produced, regardless of the type or extent of "work".

Significant changes – Functional Feet

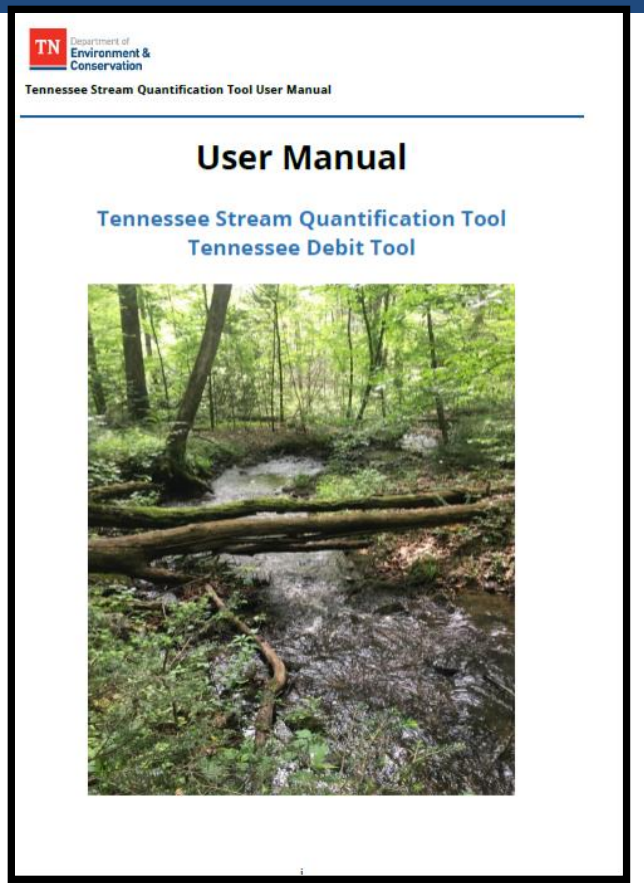
- We now have quantitative tools (Excel Workbooks) that calculate functional loss (*TN Debit Tool*) and functional lift (*TN Stream Quantification Tool*) in Functional-Feet.

- This allows Credits and Debits to be evaluated using the same scientifically defensible methodology (functional-feet), as required to defend no net loss.

- Because the determination of Credits and Debits is based on new methodologies, and is calculated using a different unit of measurement, the numerical scale of value will change.

TN Stream Quantification Tool

- The basic framework, underlying logic, and technical aspects of a Functional-Foot methodology is laid out in detail in the recently published *Tennessee Stream Quantification Tool*, available on the Division's mitigation web site.
- The *Tennessee Stream Quantification Tool* is the preferred methodology for evaluation of a compensatory mitigation site's potential and actual increase in resource value and function.
- It was developed over five years in consultation with stakeholders, consultants, mitigation providers, and members of the IRT.



THE TENNESSEE INTERAGENCY REVIEW TEAM REPRESENTATIVES

US Army Corps of Engineers

USDA NRCS U.S. Department of Agriculture Natural Resources Conservation Service

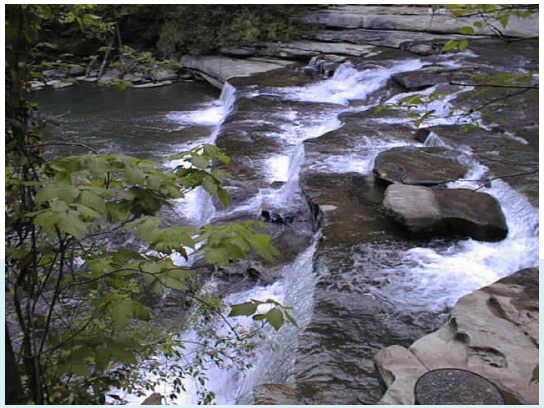
TVA

TN Department of Environment & Conservation

Significant Changes – Existing Condition

Evaluating the **Existing Condition** of Impacted Waters

- If an activity results in appreciable loss of resource value, the applicant must "*provide mitigation which results in no overall net loss of resource value from existing conditions*."
- Therefore debit requirements are evaluated by first determining the Existing Condition Score of the affected stream (in functional feet), then using Impact Tiers to evaluate a post-project functional condition (the difference = amount of function-foot loss).



Minimum Existing Condition Score

- Minimum Mitigation Requirement : ***"Because all streams and wetlands serve important functions, the determination of existing conditions shall ensure at least minimal protection for all streams and wetlands not withstanding prior degradation"***

Even currently degraded streams (including many in urban areas) have resource values outside of those addressed in the functional quantification evaluation that must be offset if lost.

Therefore the *Guidelines* establish a minimum Existing Condition Score for all streams, to ensure overall net mitigation is sufficient to maintain classified uses and water quality standards.

Existing Condition Score - Options

1. Applicants complete an **Existing Condition assessment** of all the required parameters and metrics.

   Recommended Use : Permit applicants who have the available expertise and wish to take the time to perform full assessments. Typically used for larger-scale impacts.

2. Applicants **estimate the Existing Condition** by assessing some, but not all of the required parameters and metrics.

   Recommended Use : Permit applicants who wish to only enlist expertise and time to assess a subset of parameters.

3. Applicants use a **standard Existing Condition** (default score).

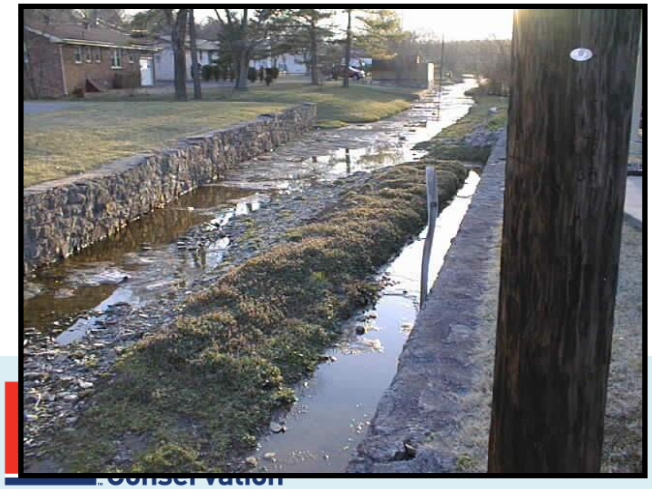
   Recommended Use : Permit applicants seeking expedited timelines, or for smaller-scale projects.

Impact Tier Descriptions / Functions Impacted

Tier	Functional Loss Description (Impacts to stream resource values)*
0	No appreciable permanent loss of stream function individually or cumulatively at any scale.
1	Minimal loss of stream function. Impacts to **reach runoff, lateral migration and/or riparian vegetation**. No appreciable impact to water quality, and macroinvertebrate and fish communities.
2	Partial loss of stream function. Impacts to **reach runoff, lateral migration, bed form diversity, and riparian vegetation.** No appreciable impact to water quality, and macroinvertebrate and fish communities.
3	Permanent loss of some of stream function. Impacts to **reach runoff, floodplain connectivity, lateral migration, riparian vegetation, and bed form diversity**. May also include impacts **to large woody debris**. Minor impacts to **water quality** and moderate impacts to **macroinvertebrate and fish communities**.
4	Permanent loss of most of stream function. Impacts to **reach runoff, floodplain connectivity, lateral migration, riparian vegetation, and bed form diversity**. May also include impacts to **plan form and/or large woody debris**. Significant impacts to **water quality and macroinvertebrate and fish communities.**
5	Permanent loss of most of stream function. **Removal of all aquatic functions except for hydrology**.
6	Total and permanent loss of all stream functions. **Complete elimination of all stream functions**. Total loss of existing and potential function.

Impact Tiers and Lost Resource Value

The *Stream Mitigation Guidelines* describe a wide variety of common impact types, allowing determination of which Impact Tier proposed and authorized activities will fall under. Debits are calculated as the percent loss in functional feet for each impact (Proposed Condition Score), based on the existing condition score of the affected stream(s).



Impact Severity Tiers	Impact Factors	Percent Functional Loss
Tier 0	1.00	0%
Tier 1	0.89	11%
Tier 2	0.8	20%
Tier 3	0.52	48%
Tier 4	0.32	68%
Tier 5	0.12	88%
Tier 6	0.00	100%

Other factors considered for resource loss

- Temporal Loss : Should complete mitigation prior to or concurrent with impacts, and the Division may "*account for temporal loss of resource value*" with additional required mitigation.

- Proximity: "*Mitigation should occur as close to the impact location as practical".* Guidelines propose multipliers for proximity, based on existing USACE methodology.

- Unique or Exceptional Waters: Not all standard mitigation practices may be adequate to address sites with special resource value.

Additional Clarification

- Stream Fill and Replacement (relocation) projects
  - Minimum requirements based on scale and current condition
- 12-point Mitigation Plan
  - Matches USACE requirements (level of detail based on scale)
- Permittee-Responsible Mitigation vs. Third-Party Providers
  - Most of the same standards apply (based on scale & complexity)
- Performance Standards and Monitoring Requirements
  - Most align with USACE requirements, see joint guidance document
- "Commonly Encountered Variants" (Frequently Encountered Scenarios) - section expanded with more examples

Additional Clarification

- Preservation Crediting
  - Allowed under certain circumstances – may be credited up to 10% of the Existing Condition Score
- Urban Mitigation Sites
  - May be incentivized up to 15% additional credits (TDEC only)
- Perpetual Site Protection

Additional Resources on TDEC Website

- TN Stream Quantification Tool and supporting manuals
- Regional Curves – statewide by Level III ecoregion
- Stream Bank and In-Lieu Fee Draft Prospectus Checklist
- Stream Bank and In-lieu Fee Draft MBI Guidance
- Permittee-Responsible Mitigation Guidance
- Links to RIBITS, TDOT Mitigation Program
- Overview of the 2008 Federal Rule for Compensatory Mitigation
- Perpetual Protection Templates

google : ***TDEC compensatory mitigation***

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